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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FISCHER, JUSTIN R

ART UNIT PAPER NUMBER

1733

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/768,301

Applicant(s)

BERNARD ET AL.

Examiner

Justin R. Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39-45,47 and 52-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 39-45,47 and 52-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on September 18, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/609,165 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 39, 40, 42-45, 47, 52, 54, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonko (US 5,337,814, of record) and in view of Dunnom (US 3,738,948, of record), Lee (US 3,660,340, of record), Boon (US 4,356,219, of record), Toyoda (US 4,963,613, of record), and Watanabe (WO 01/14461, of record), and optionally in view of Bonko (US 6,062,282, of record). The references are applied in the same manner as set forth in the Non Final Rejection (Paragraph 3).

As best depicted in Figures 2 and 4, Bonko '814 discloses an agricultural tire having a plurality of lugs 18A, 18B, wherein said lugs have dimensions (length, width, and height) that satisfy the broad ranges of the claimed invention (Abstract, Column 4, Lines 38-40, Column 5, Lines 5-20, Column 6, Lines 45-51 and Lines 63+, and Column 9, Lines 30-40). The reference further teaches that the tire contains conventional tire

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components, include carcass plies and belt plies (Column 6, Lines 5-15). While the reference fails to expressly teach that these components are formed of textile reinforcing elements, it is extremely well known in the tire industry to use textile reinforcing elements in a wide variety of components (in a wide variety of tires), including the carcass and belt. Bonko '282 is optionally applied to expressly evidence the common use of textile reinforcing elements, such as polyester and nylon, in an agricultural tire construction (Column 6, Lines 4-10). As to the topping or coating rubber composition, Bonko '814 is completely silent as the specific makeup of said rubber. Dunnom, on the other hand, teaches a specific rubber composition for the manufacture of a wide variety of fiber-reinforced composites, including carcass plies of vehicle tires (Column 4, Lines 10-15). In this instance, the composition of Dunnom is described as specifically providing improved adhesion between said rubber and polyester (Column 1, Lines 40-43). Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to use the composition of Dunnom in the polyester-reinforced carcass and/or belt of Bonko '814, it being noted that the composition of Dunnom is generic to improving adhesion between rubber and fiber reinforcing elements (e.g. polyester) in vehicle tires.

As to the composition, Dunnom suggests a composition that comprises (a) at least one of styrene-butadiene, polybutadiene, polyisoprene (synthetic or natural), (b) 0.5 to 2 phr of accelerator, preferably benzothiazoles, (c) 20-200 phr of a filler, such as carbon black and/or silica, and (d) 0.5 to 3 phr of sulfur (Column 1, Lines 50-60 and Column 3, Lines 10-50). Regarding (a), absent any conclusive showing of unexpected

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results, one of ordinary skill in the art at the time of the invention would have found it obvious to form a composition that satisfied the broad ranges of the claimed invention. Thus, the composition of Dunnom is only devoid of the claimed resin. However, Dunnom clearly teaches that "other conventional rubber chemicals" can be employed (Column 3, Lines 30-40). In this instance, it is extremely well known in the tire industry to include tackifiers, such as aliphatic and/or aromatic hydrocarbons, in tire compositions in order to provide improved "tack" between adjacent rubber compositions, as shown for example by Lee (Column 1, Lines 35-50 and Column 2, Lines 9-45). It is emphasized that Lee specifically describes the use of such well known tackifiers in tire compositions formed of synthetic rubbers that are analogous to those of Bonko '814, such as styrene butadiene rubber and/or polybutadiene rubber (Column 7, Lines 50-60). Lastly, the claimed amounts are consistent with the loadings commonly used for conventional rubber additives.

As to the inclusion of a polyepoxide emulsion and an RFL emulsion, it is extremely well known to treat synthetic fiber reinforcing elements, such as polyester, in order to improve adhesion between said reinforcing elements and the surrounding rubber. In particular, Boon discloses such a method in which a cord, particularly polyester, is initially treated with an aqueous emulsion comprising a polyepoxide (aqueous emulsion of epoxy) and subsequently treated with an RFL coating (Column 1, Lines 45-55 and Column 3, Lines 60+). In this instance, Boon teaches that such a method provides a high degree of adhesion between the polyester reinforcing element and the surrounding rubber. It is further noted that this benefit is consistent with the

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benefits of using the claimed topping/coating rubber, as detailed above. One of ordinary skill in the art at the time of the invention would have found it obvious to practice the "treatment" method of Boon in the tire of Bonko to achieve the above noted benefits. It is additionally noted that the method of Boon involves applying a polyepoxide to the untwisted yarns, twisting said yarns into a cord, and finally applying an RFL treatment. As currently drafted, the claims are directed to a tire article and fail to require the second polyepoxide be different from the first polyepoxide. Thus, it appears that the cord produced by Boon is substantially the same as that detailed by the claimed invention (e.g. if polyepoxides are the same). Lastly, it is emphasized that the claims are directed to a tire article and not a method of making a tire and it does not appear that the disclosed method produces a materially different article.

In regards to the RFL coating, such a coating is extremely well known in a wide variety of industries. Boon suggests that it (RFL or resorcinol-formaldehyde latex) is commonly included as part of an aqueous latex, usually a butadiene/styrene/vinylpyridine terpolymer (Column 1, Lines 25-35). While the reference fails to expressly state that the rubber latex is formed as a combination of said butadiene/styrene/vinylpyridine terpolymer and the claimed copolymer, it is extremely well known to form the rubber latex as a combination of these materials, as shown for example by Toyoda (Column 1, Lines 35-38). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to form the rubber latex in accordance to the limitations of the claimed invention. It is additionally noted that the relevant language is directed to the

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method of forming the polyester cord and thus does not further define the claimed tire article/structure. In particular, there is no evidence of record that the claimed method results in a materially different product. Boon does suggest the application of polyepoxide and RFL after forming the cord and applicant has only compared the inventive concept with cords having polyepoxide and RFL applied prior to forming a cord (Table 7).

With respect to the inclusion of a blocked isocyanate, said isocyanate represents an extremely well known and conventionally used additive in RFL coatings, as shown for example by Watanabe (Page 10, Lines 25-27). The reference expressly teaches that such an additive contributes to enhanced adhesive performance. Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to include a blocked isocyanate in the RFL coating of Boon.

Regarding claim 40, Lee evidences the common use of aliphatic and/or aromatic hydrocarbon resins in tire rubber compositions to provide improved tack.

With respect to claims 42-44, Bonko '814 suggests the use of a variety of benzothiazoles (Column 3, Lines 10-20), it being recognized that such additives are extremely well known in the tire industry.

Regarding claims 45-47, said claims are product by process claims and the patentability of such a product does not depend on its method of production. In this instance, applicant has not established that the claimed process steps result in a materially different product (e.g. that they impart distinctive structural characteristics to the final product).

As to claim 52, as noted above, it is well known to form the carcass and/or belt with polyester reinforcing elements. Bonko '282 has been optionally applied to expressly evidence the use of polyester reinforcing elements in agricultural tires.

With respect to claim 54, Dunnom describes the composition as having carbon black and silica at a total filler loading between 20 and 200 phr, wherein the silica loading is at least 10 phr (Column 4, Lines 1-4).

Regarding claim 55, the composition of Dunnom further includes resorcinol (methylene acceptor) and a methylene donor (Column 2, Lines 25-32).

4. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonko '814, Dunnom, Lee, and Bonko '282 as applied in claim 39 above and further in view Barton (US 3,554,857). The references are applied in the same manner as set forth in the Non Final Rejection (Paragraph 4).

As noted above, Dunnom substantially teaches the claimed coating or topping rubber composition for a polyester reinforced tire component. In this instance, Dunnom suggests that conventional accelerators, such as benzothiazoles and sulfenamides, are included in said composition. However, Barton teaches that the use of such accelerators, particularly sulfenamides, results in a degradation of the polyester reinforcing element (Column 1, Lines 25-50). In this instance, Barton teaches the use of zinc phosphorodithioate as the accelerator in polyester reinforced composites in order to overcome the above noted deficiencies of conventional accelerators (Column 1, Lines 59+). As such, it is evident that one of ordinary skill in the art at the time of the invention would have found it obvious to use the claimed accelerator in the composition

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of Dunnom. It is emphasized that Dunnom is generic to the use of conventional accelerators- absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have readily appreciated the claimed composition.

5. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonko 814, Dunnom, Lee, and Bonko '282 as applied in claim 39 above and further in view of Schwarze (US 3,842,111). The references are applied in the same manner as set forth in the Non Final Rejection (Paragraph 5).

As noted above, Dunnom substantially teaches the claimed coating or topping rubber composition for a polyester reinforced tire component. In this instance, Dunnom suggests, in addition to the specifically outlined components, that "other conventional rubber chemicals" can be added. It is well known in the tire industry to include a wide variety of additives in tire rubber compositions, including adhesion promoters.

Schwarze provides one example in which the claimed silane-coupling agent is expressly disclosed (in a silica-containing rubber composition) as providing improved processing and adhesion (Column 1, Lines 35-70 and Column 2, Lines 25-40). It is emphasized that such an additive is extensively used in combination with silica-containing rubber compositions in order to obtain the above noted benefits. Thus, absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include such an additive in the silica-containing rubber composition of Dunnom.

Response to Arguments

6. Applicant's arguments filed September 18, 2006 have been fully considered but they are not persuasive.

Applicant initially argues that the original disclosure includes evidence of unexpected results sufficient to overcome prima facie obviousness. The examiner respectfully disagrees. First, Samples 10 and 11 differ in the amount of sulfenamide and the amount of disulfide and thus, it is unclear if the differences in adhesion are a function of the sulfenamide, the sulfide, or the combination of additives. Second, the closest prior art of record is Bonko, in which a polyepoxide is applied to a plurality of untwisted yarns and an RFL treatment is applied to a cord formed by twisting the yarns. In this instance, applicant has not compared the claimed method to the method of the closest prior art of record but rather to a "conventional RFL dip" before the yarn twist.

Applicant additionally argues that the Examiner repeatedly uses the justification that each of the limitations are known. However, the above noted rejection clearly sets forth the motivation to justify the prima facie obviousness rejection. In particular, Dunnom expressly teaches that the relevant carcass coating composition provides a high degree of adhesion between rubber and fiber reinforcing elements. Furthermore, the polyepoxide/RFL treatment is described by Boon as providing a high degree of adhesion between rubber and surrounding reinforcing elements. Thus, it is not just the fact that the respective limitations are known but rather the specific motivation found in each reference to arrive at the claimed tire construction. It is additionally noted that the advantages disclosed by the above noted references are consistent with one another,

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further suggesting that the claimed tire construction would have been obvious to one of ordinary skill in the art at the time of the invention.

Lastly, applicant argues that the data of Examples 4 and 5 illustrate that the practice of the invention results in a materially different product. However, the data can only provide a comparison between a conventional RFL dip before yarn twist and a polyepoxide/RFL dip after yarn twist. As noted above, though, applicant has not compared the claimed tire or cord construction with that of the closest prior art in which a polyepoxide is applied before the yarn twist and the RFL is applied after the yarn twist. Additionally, it is unclear if the data is commensurate in scope with the claims since it is unclear if a polyepoxide treatment is performed prior to the yarn twist.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Justin R Fischer
Primary Examiner
Art Unit 1733

JRF
November 7, 2006